State of the Art (SOTA) Manual for Volatile Organic Compound Storage Tanks

(greater than or equal to 2,000 gallons)

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State of New Jersey
Department of Environmental Protection
Air Quality Permitting Program

State of the Art (SOTA)
Manual for Volatile Organic Compound
Storage Tanks
(greater than or equal to 2,000 gallons)
Section 3.1

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3.1 SOTA MANUAL FOR VOC STORAGE TANKS

3.1.1 Scope

These State of the Art (SOTA) levels apply to all newly constructed, reconstructed or modified storage vessels, storing any volatile organic compound (VOC) with a capacity equal to or greater than 2000 gallons.

3.1.2 SOTA Performance Levels

SOTA performance levels are not a substitution for complying with the regulations contained in the New Jersey Administrative Code (N.J.A.C.) 7:27, particularly section - 16.2 (Storage of VOC's). These regulations must be met for all tanks. For some tanks, there will be no additional SOTA levels, and compliance with N.J.A.C. 7:27 will be sufficient.

3.1.2.1 Storage Tanks Subject to MACT

If a storage vessel is subject to 40 CFR 63, Subpart CC, National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries, then compliance with all of the provisions of that Maximum Achievable Control Technology (MACT) standard is equivalent to SOTA.

If a storage vessel is subject to 40 CFR 63, Subpart G, Standards for Synthetic Organic Chemical Manufacturing Industry (SOCMI) Storage Tanks, then compliance with all of the provisions of that MACT standard is equivalent to SOTA.

3.1.2.2 Storage Tanks Not Subject to MACT

A. Storage Tanks with a capacity greater than or equal to 2,000 gallons, and storing Group 1 Toxic Substances (TXS) greater than 50% by volume, are required to install a vapor control system. The control system shall be designed and operated to reduce uncontrolled TXS emissions by a minimum of 99%.

B. Storage tanks with a capacity greater than or equal to 2,000 gallons, and storing a VOC with a vapor pressure greater than 11.1 pounds per square inch absolute (psia), are required to install a vapor control system. The control device shall be designed and operated to reduce uncontrolled VOC emissions by a minimum of 95% or greater.

C. Storage tanks with a capacity greater than or equal to 2,000 gallons, and storing a VOC with a vapor pressure less than or equal to 11.1 psia must meet the criteria in the following table.

Vapor Pressure of Contents (psia)	Tank Capacity	State of the Art Standard
Less than 0.75	All sizes	Compliance with N.J.A.C. 7:27-16.2 is SOTA
0.75 or greater, but less than 4.00	Less than 40,000 gallons	Compliance with N.J.A.C. 7:27-16.2 is SOTA
	40,000 gallons or greater	SOTA is having a floating roof configuration as described below, and compliance with N.J.A.C. 7:26-16.2
4.0 or greater, and less than 11.1 psia	Less than 20,000 gallons	Compliance with N.J.A.C. 7:27-16.2 is SOTA
	20,000 gallons or greater	SOTA is having a floating roof configuration as described below, and compliance with N.J.A.C. 7:27-16.2

For a tank required to have a floating roof to comply with this SOTA standard, one of the following configurations is required:

- internal floating roof with a foam or liquid filled seal
- internal floating roof with a double wiper seal
- internal floating roof with a mechanical shoe seal
- external floating roof with a foam or liquid filled seal with a secondary wiper seal
- external floating roof with a mechanical shoe seal with a secondary wiper seal

The technical and operating specifications for the above SOTA floating roof configurations are the same as those located in the New Source Performance Standard (NSPS - 40 CFR Part 60 Subpart Kb).

3.1.3 Technical Basis

The SOTA workgroup evaluated information from the following sources in determining the SOTA Performance Levels.

A. Department of Environmental Protection, Bureau of New Source Review permit files for storage tanks.

B. Existing NSPS, National Emissions Standards for Hazardous Air Pollutants (NESHAP), and MACT standards.

C. Storage Tank Manufacturers.

D. New Jersey Administrative Code 7:27-16, Control and Prohibition of Air Pollution By Volatile Organic Compounds.

The SOTA levels indicated above are what is required by applicable Federal and State of New Jersey regulations.

3.1.4 Recommended Review Schedule

The manual will be revised any time N.J.A.C. 7:27-16 and 17 are revised, and any time a new MACT standard, NSPS, or NESHAP standard is published.

The manual may also be revised if new storage technologies that minimize emissions become available. This manual is expected to be revised by July 2000.